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Family Reintegration Experiences of Soldiers with Mild Traumatic Brain Injury

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14. ABSTRACT
Purpose: The purpose of this study was to explore family reintegration processes of post-mTBI soldiers and their spouses as described in their own words. Design: Both joint and separate

individual interviews were conducted with nine soldiers with mTBI and their spouses for a total of 27 interviews. Methods: Strauss and Corbin's grounded theory methodology was used. Sample: Participants were active duty soldiers with deployment-related mTBI and their legally married civilian spouses who spoke English. Sampling was directed by theoretical sampling methods, which means that recruitment of study participants was guided by emerging and theoretically relevant constructs drawn from analysis of collected data (Strauss & Corbin, 1998). Analysis: Data collection and analysis occurred simultaneously, followed by a gathering of more focused data to answer emerging analytic questions. Categories that emerged with high frequency and connected with other categories were considered core categories (Charmaz, 2006; Pandit, 1996; Strauss & Corbin, 1998). Findings: The core variable of aim 1 was, Finding a New Normal. A new normal was defined by participants as the couple's new, post-mTBI expectation of the family unit or family routine. The overarching theme of aim 2 was, Chasing the Care, which soldiers described as having to be persistent in order to receive adequate and appropriate care following mTBI. It is described with the following sub-themes: advocating for care for post-mTBI symptoms, getting the care for post-mTBI symptoms, and sharing the responsibility of care with healthcare providers. Implications for Military Nursing: Military nurses are at the forefront in identifying mTBI when post-deployment soldiers present to the emergency room or other clinical settings. It is also nurses who, as case managers, advocate for post-mTBI care, and it is nurses who provide much of that care and who educate soldiers and their family members about mTBI.

15. SUBJECT TERMS

family reintegration, deployment-related mTBI, fit and ready force, patient outcomes, recruitment and retention, care for all entrusted to our care, caregiver

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TriService Nursing Research Program Final Report Cover Page

Sponsoring Institution	TriService Nursing Research Program
Address of Sponsoring Institution	4301 Jones Bridge Road Bethesda MD 20814
USU Grant Number	HU0001-11-1-TS14
USU Project Number	N11-C17
Title of Research Study	Family Reintegration Experiences of Soldiers with Mild Traumatic Brain Injury
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Signatures

PI Signature _____ Date _____

Mentor Signature _____ Date _____

Table of Contents

Abstract

Purpose: The purpose of this study was to explore family reintegration processes of post-mTBI soldiers and their spouses as described in their own words.

Design: Both joint and separate individual interviews were conducted with nine soldiers with mTBI and their spouses for a total of 27 interviews.

Methods: Strauss and Corbin's grounded theory methodology was used.

Sample: Participants were active duty soldiers with deployment-related mTBI and their legally married civilian spouses who spoke English. Sampling was directed by theoretical sampling methods, which means that recruitment of study participants was guided by emerging and theoretically relevant constructs drawn from analysis of collected data (Strauss & Corbin, 1998).

Analysis: Data collection and analysis occurred simultaneously, followed by a gathering of more focused data to answer emerging analytic questions. Categories that emerged with high frequency and connected with other categories were considered core categories (Charmaz, 2006; Pandit, 1996; Strauss & Corbin, 1998).

Findings: The core variable of aim 1 was, *Finding a New Normal*. A new normal was defined by participants as the couple's new, post-mTBI expectation of the family unit or family routine. The overarching theme of aim 2 was, *Chasing the Care*, which soldiers described as having to be persistent in order to receive adequate and appropriate care following mTBI. It is described with the following sub-themes: advocating for care for post-mTBI symptoms, getting the care for post-mTBI symptoms, and sharing the responsibility of care with healthcare providers.

Implications for Military Nursing: Military nurses are at the forefront in identifying mTBI when post-deployment soldiers present to the emergency room or other clinical settings. It is also nurses who, as case managers, advocate for post-mTBI care, and it is nurses who provide much of that care and who educate soldiers and their family members about mTBI.

TSNRP Research Priorities that Study Addresses

Primary Priority

Force Health Protection:	☒ Fit and ready force ☐ Deploy with and care for the warrior ☐ Care for all entrusted to our care
Nursing Competencies and Practice:	☐ Patient outcomes ☐ Quality and safety ☐ Translate research into practice/evidence-based practice ☐ Clinical excellence ☐ Knowledge management ☐ Education and training
Leadership, Ethics, and Mentoring:	☐ Health policy ☐ Recruitment and retention ☐ Preparing tomorrow's leaders ☐ Care of the caregiver
Other:	☐

Secondary Priority

Force Health Protection:	☐ Fit and ready force ☐ Deploy with and care for the warrior ☒ Care for all entrusted to our care
Nursing Competencies and Practice:	☐ Patient outcomes ☐ Quality and safety ☐ Translate research into practice/evidence-based practice ☐ Clinical excellence ☐ Knowledge management ☐ Education and training
Leadership, Ethics, and Mentoring:	☐ Health policy ☐ Recruitment and retention ☐ Preparing tomorrow's leaders ☐ Care of the caregiver
Other:	☒ Family Care

Progress Towards Achievement of Specific Aims of the Study

Findings related to each specific aim, research or study questions, and/or hypothesis:

The purpose of this study was to explore family reintegration processes of post-mild traumatic brain injury (mTBI) Soldiers and their spouses. Two aims for this study were:
Aim 1 was to describe family reintegration post-mTBI.
RQ1: How do Soldiers with mTBI and their spouses describe family reintegration?
Aim 2 was to explore the processes Soldiers and their spouses use to achieve family reintegration after mTBI.
RQ2: What management strategies do Soldiers and their spouses use to cope with the challenges of family reintegration after mTBI?

The sociodemographic characteristics of the participants are presented in Table 1. Participants included nine soldiers and nine spouses. Majority of soldier participants (n=8) were male. More than 50% of the soldiers (n=5) and 75% of the spouses (n=7) were White. The soldiers' rank ranged from specialist to field grade officers. More than 65% of couples (n=6) had 1 or 3 children at home. Fifty-six percent (n=5) and 44% (n=4) of soldiers reported clinically significant depression and anxiety symptoms, defined as a score 11 or greater of each of the depression and anxiety subscales of the HADS. Ten percent (n=1) of spouses disclosed clinically significant anxiety symptoms based on the HADS subscale score. Fifty-six percent (n=5) of soldiers reported unsatisfactory marital relationship, as indicated by a score of less than 100 on MAT; whereas, 22% of the spouses (n=2) reported dissatisfaction with their marriage. Sixty-seven percent of soldiers revealed clinically significant PTSD symptomotology on the PCL-M scale, represented by a score of 50 or above.

Table 1: Soldier and Spouse Characteristics

	Characteristics	Mean (SD)	Median	Range	n (%)
Soldier	Age	33.4 (7.5)	33	21-44	
	Education	14.4 (2.4)	14	12-18	
	Race				
	White				5 (56)
	Black				1 (11)
	Hispanic				2 (22)
	Other				1 (11)
	Rank				
	Enlisted				2 (22)
	NCO				4 (44)
	Officer				3 (33)
	Deployment time	9.0 (3.7)	11	3-12	
	HADS Depression	9.7 (3.6)	10	3-14	
	HADS Anxiety	9.1 (3.3)	9	2-13	
	MAT Score	92.1 (35.4)	99	41-130	
	PCL-M Score	52.0 (11.3)	56	30-67	
Spouse	Age	33.9 (9.2)	35	20-49	
	Education	13.3 (1.7)	13	12-16	
	Race				
	White				7 (78)
	Black				1 (11)
	Hispanic				1 (11)
	HADS Depression	4.1 (2.8)	3	1-9	
	HADS Anxiety	7.0 (3.7)	7	2-15	
	MAT Score	116.4 (17.9)	121	90-148	
Marital Dyad	Time in marriage	9.7 (8.8)	8	1-25	
	Children				
	0				2 (22)
	1				3 (33)
	3				3 (33)
	4				1 (11)

Age = in years; Children = number of children at home; Deployment time = length of deployment in months; Education = in years; Enlisted = E1-E4; NCO (Non-Commissioned Officer) = E5-E9; Officer = CW1-O6; Time in marriage = in years

Table 2 presents the Speaman correlation coefficients for the soldier and spouse scores with regard to HADS anxiety, HADS depression, and the MAT marital adjustment scores. A moderate negative linear association between the depression scores (r_s = -0.61, r_s^2 = 0.37) in the nine couples was observed. Higher depression scores in the soldier were associated with lower depression scores in the spouse. Weak within-couple correlation were indicated on the other measures. Table 3 presents the Spearman correlation matrix for the HADS depression symptoms, HADS anxiety symptoms, MAT marital adjustment, and PCL-M based PTSD symptom scores for the soldiers and spouses separately.

Table 2: Spearman Correlation Coefficients for Couples

	Spouse MAT	Spouse Depression	Spouse Anxiety
Soldier MAT	-0.06		
Soldier Depression		-0.61	
Soldier Anxiety			-0.12

Table 3: Spearman Correlation Coefficients for Soldiers and Spouses

	Depression	Anxiety	MAT
Soldier			
Anxiety	0.25		
MAT	-0.10	0.03	
PCL-M	0.23	0.74	-0.36
Spouse			
Anxiety	0.53		
MAT	-0.65	-0.76	

Depression = HADS depression subscale scores; Anxiety = HADS anxiety subscale scores; MAT = marital adjustment scores; PCL-M = PTSD scores.

The core variable of aim 1 was, *Finding a New Normal*. A new normal was defined by participants as the couple's new, post-mTBI expectation of the family unit or family routine. The idea of a new normal is supported by the following themes: facing up to the soldier's unexpected homecoming, managing unexpected changes in the family routine, experiencing mismatched expectations, and adjusting to new expectations for the family. The overarching theme of aim 2 was, *Chasing the Care*, which soldiers described as having to be persistent in order to receive adequate and appropriate care following mTBI. It is described with the following sub-themes: advocating for care for post-mTBI symptoms, getting the care for post-mTBI symptoms, and sharing the responsibility of care with healthcare providers. The relationship among sub-themes is shown in figure 1.

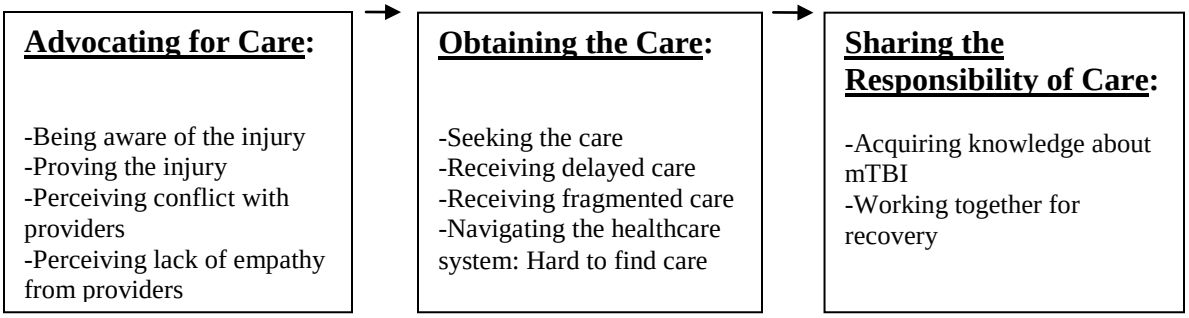

Figure 1: Chasing the Care

Effect of problems or obstacles on the results:

The PI graduated in May 2013 then attended Command and General Staff College, which delayed the dissemination plan. Currently, three manuscripts are under review for publication.

Relationship of current findings to previous findings:

The literature suggests that, while individuals with moderate to severe TBI are usually unaware of their post-injury cognitive impairment, individuals with mild TBI (mTBI) typically are aware of their cognitive deficits and functional limitations (Erez et al., 2009; Malec et al., 2007; Yeates et al., 2007). The findings from the present study show that soldiers often do not recognise post-injury cognitive impairments in relations to mTBI. For example, almost all participants (both soldiers and spouses) had difficulty recognizing mTBI symptoms as such and often attributed the symptoms they did recognize to the general stress of deployment or to the experience of combat, rather than to the injury. This lack of injury awareness often resulted in significant delays in seeking healthcare and receiving timely intervention. Some soldiers were aware of their symptoms but believed that these symptoms were not serious enough to seek care and attempted to self-manage them. A majority of soldiers either sought care for their post-mTBI symptoms because someone else (their spouses) had urged them to or because they realized that their symptoms had become unmanageable.

The findings from this study confirm findings from previous research by Erez and colleagues, who reported that individuals with mTBI experience significant deficits in attention and emotional regulation (Erez et al, 2009). The findings also echo Ponsford and colleagues' research outcomes showing that ongoing memory and concentration problems frequently follow an mTBI (Ponsford et al., 2011). The majority of soldier participants in this study reported receiving care for mood disorders and other mental health issues, which supports previous literature suggesting that a high number of soldiers with mTBI have co-existing psychiatric conditions (Hoge et al., 2004; Hoge et al., 2006; Hoge et al., 2008; Johnson et al., 2007).

Limitations: The participants for this study were recruited from a single Army post; thus, findings from this sample setting may not be generalizable across other service settings. Nevertheless, it is clear that, for the Army as a whole, some soldiers with mTBI experience symptoms that last beyond 1 year and that these symptoms contribute to post-injury marital and family reintegration challenges.

Conclusion: Participants described the post-mTBI reintegration as the process of "finding a new normal." Often, Soldiers and their spouses recognized changes after injury; however, experienced difficulty recognizing mTBI symptoms and attributed changes as the result of deployment or stress of war experiences. This lack of injury awareness often resulted in significant delays in seeking healthcare and receiving timely intervention. Furthermore, the majority of participants in this study expressed frustration over navigating the military healthcare system; several of them described this as "chasing the care." This is one area where nurses play an important role as care advocators and coordinators of services.

Significance of Study Results to Military Nursing

This study makes several contributions to the current science on post-mTBI family reintegration. Two of the main themes identified in the present study (mismatched expectations and finding a new normal) have not been addressed in previously published research. Therefore, this study contributes to the existing knowledge of the field. Perhaps the biggest contribution this study makes, however, is to fill in the gaps in the existing mTBI literature on family reintegration, since the literature tends to focus on either the perspectives of injured individuals or the perspectives of their uninjured spouses, but seldom both. This study also contributes to the knowledge on post-mTBI family reintegration by identifying the unique needs of mTBI-affected families, as well as introducing new perspectives that counter long-held assumptions about stigma and soldiers' mental healthcare-seeking behavior.

Mild TBI is often missed and thus often goes untreated. For individuals with mTBI and their families, this result in puzzling, often incapacitating symptoms that have an adverse effect on individual and family functioning. These difficulties are in turn complicated by a lack of understanding of mTBI symptoms and by the soldiers' reluctance to report symptoms for fear that doing so could affect their military career. When mTBI goes undiagnosed and untreated, the spouse must take on the main responsibility for mTBI symptom management. And when this approach becomes unmanageable, as it inevitably does, the spouse must then advocate with military healthcare providers for the soldier to get the needed medical treatment.

Soldiers and their families often frustrated by "chasing the care" in a medical system characterized by high provider turnover and fragmentation of services. Taken as a whole, the information soldiers and their spouses provided in this study makes a strong case for a new policy of educating the medical community around combat-related mTBI and creating a system of reintegration support programs. This study also identifies several areas in which healthcare providers can assist uninjured spouses in dealing with both the practical (role change) and emotional (relationship perception) aspects of adjustment during family reintegration. This includes providing education on mTBI as well as support groups for family members.

Contrary to some research showing that soldiers view mental healthcare as stigmatizing and will therefore avoid it (Hoge et al., 2004; Pietrzak, Johnson, Goldstein, Malley, & Southwick, 2009), this study found that soldiers did not find mental healthcare stigmatizing if the diagnosis is related to mTBI and will seek care if they feel it is necessary for their physical recovery or to improve their marital relationship. The study findings also suggest that the Army's efforts to reduce the stigma associated with psychological health issues have been at least somwhat successful. Finally, the study found that injured soldiers' perceptions of the provider's attitude toward them was one of the biggest barriers to seeking post-mTBI care. Soldiers expressed a sense of betrayal and feeling let down because the quality and kinds of care available to them upon their return from deployment were not up to the level they had expected. Some soldiers also reported being fearful of being categorized as malingerers or fakers by their peers, superiors, and healthcare providers.

Primary care physicians are certainly not the only source of care available to the families of soldiers affected by mTBI. Nurses and social workers may also contribute as care advocates and coordinators of services. Education programs that include early screening, standardized diagnosis, post-injury symptom recognition, and information about the rehabilitation process in general can also provide support for injured soldiers and their families.

Providers must be educated on how to build rapport with soldiers diagnosed with mTBI, as this will ultimately enhance treatment. The findings from this study support previous studies showing that a treatment plan oriented toward problem-solving and acknowledgement of the injury were associated with a better quality of post-injury adjustment and marital satisfaction (Blais & Boisvert, 2005; Ponsford & Schonberger, 2010; Rappaport & Herero, 1989).

Recommendations for Future Study

Many factors may prevent a soldier who sustains an mTBI in combat from seeking immediate care. Often, soldiers who have been exposed to IEDs remain at their stations, far from a major medical center that can provide comprehensive screening and treatment. In other cases, injured soldiers may be engaged in sustained combat, making immediate evacuation impossible. In addition, the variable nature of post-mTBI symptoms and mTBI's uncertain trajectory sometimes makes it difficult for providers to diagnose and treat affected soldiers in a timely and effective manner; therefore, longitudinal studies of mTBI symptoms as they evolve over time are needed.

Traumatic brain injury research to date has focused almost exclusively on the views and responses of the uninjured spouse (who is often also the primary caregiver). The unexamined assumption of providers and investigators is that the spouse with the brain injury is incapable of providing independent responses that would allow the couple to recover after a TBI. Future research should focus on understanding how injured individuals and their uninjured spouses together experience the variable nature of mTBI and collaborate to achieve a successful recovery over time. As this study shows, family function is impacted as families react to an injured soldier's symptoms and behavioral changes. However, healthcare professionals still need a better understanding of the complicated dynamic between the family and injured individual under these conditions.

Existing rehabilitation services focus on moderate and severe TBI. There are few formal programs designed to help individuals and their families manage the variable and unpredictable symptoms of mild TBI. Furthermore, while families are commonly considered to be a major source of support and care for injured individuals, there are few rehabilitation programs that specifically include the family unit -- the marital dyad, partners, children, and any others who may be living with the injured individual -- in their treatment plans. Trials of rehabilitation services designed to help both injured individuals and with their families are therefore needed.

Last, a major gap in the current literature on family adjustment following mTBI is the absence of an empirically tested framework for understanding post-mTBI family experiences and coping processes. In reviewing the literature, the investigator found that the concept of "family" was not defined consistently, and therefore it was difficult to determine family composition from one study to the next. Without a standard definition, it will be difficult to design effective interventions for the "family." Future studies should therefore focus on generating and testing theories of individual and family adjustment after mild TBI.

Soldiers face a variety of challenges when they report their post-mTBI symptoms, including (a) the absence of objective findings, (b) potential impacts on their military career, and (c) unfamiliarity with the military healthcare system. These challenges make early diagnosis and treatment difficult. Educating military families and providers about these challenges is the necessary first step in dealing with the aftermath of mTBI for the estimated 320,000 soldiers who have returned from war with this injury. Therefore, studies that explore the many dimensions of

post-mTBI family adjustment may identify successful family adaptation strategies following mTBI. In addition, explorations of how psychological distress is related to post-injury family function can provide a basis for creating effective rehabilitation and support programs.

As noted above, injured soldiers and their spouses often have difficulty recognizing symptoms of mTBI. This is at least partly due to the fact that mTBI is not well-known among the public. In this study, all of the participants reported that they did not have a good understanding of what mTBI was and were therefore required to educate themselves on the subject through information available on the Internet. Since they did not fully understand mTBI, many families -- even the ones who had some knowledge of the injury -- experienced significant disruption due to mismatched expectations of the soldier's post-mTBI capabilities. More research is needed to understand how this mismatch impacts the soldier's recovery and reintegration. When the results from that research become available, mTBI researchers and clinicians will be able to develop effective post-injury rehabilitation programs for soldiers and their families.

While the war in Iraq has ended and the war in Afghanistan has begun winding down, challenges remain for the soldiers returned and returning from these wars. Thousands of service members with mTBI are still struggling to transition back into their communities, so especially now there is a need for data-driven intervention programs that can help them do that. These programs can lay the foundation for wounded soldiers and family support programs in the coming decades.

Changes in Clinical Practice, Leadership, Management, Education, Policy, and/or Military Doctrine that Resulted from Study

"None to date"

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Summary of Dissemination

Type of Dissemination	Citation	Date and Source of Approval for Public Release
Podium Presentations	Author: Kyong Hyatt, MAJ, AN Title: Family Reintegration Experiences of Soldiers with Mild Traumatic Brain Injury Joining Forces at DUSON (Duke University School of Nursing): A Call to Action * not a conference Location: DUSON Date: December 13, 2012	Approved by dissertation committee members for informative internal presentation
Podium Presentations	Authors: Kyong Hyatt, MAJ, AN; Linda Davis, PhD, RN, ANP, FAAN; Barroso, PhD, ANP, APRN, BC, FAAN Title: Family Reintegration Experiences of Soldiers with Combat-Related Mild Traumatic Brain Injury Conference Name: 118the AMSUS, The Society of Federal health Professionals Location: Seattle, WA Date: November 8, 2013	October 2, 2013, TSNRP
Poster Presentations	Authors: Kyong Hyatt, MAJ, AN; Linda Davis, PhD, RN, ANP, FAAN; Charles Vacchiano, PhD, CRNA; Susan Silva, PhD; Paul Lewis, COL, AN; Julie Barroso, PhD, ANP, APRN, BC, FAAN Title: Family Reintegration Experiences of Soldiers with Combat-Related Mild Traumatic Brain Injury Conference Name: National Capital Area TBI Research Symposium Location: NIH Date: April 29 – 30, 2013	April 19, 2013, TSNRP

Reportable Outcomes

"None"

Recruitment and Retention Table

Recruitment and Retention Aspect	Number
Subjects Projected in Grant Application	24
Subjects Available	80
Subjects Contacted or Reached by Approved Recruitment Method	80
Subjects Screened	63
Subjects Ineligible	45
Subjects Refused	17
Human Subjects Consented	18
Subjects Who Withdrew	0
Subjects Who Completed Study	18
Subjects With Complete Data	18
Subjects with Incomplete Data	0

Demographic Characteristics of the Sample

Characteristic	
Age (yrs)	33.4 ± 7.5
Women, n (%)	9 (50)
Race	
White, n (%)	5 (56)
Black, n (%)	1 (11)
Hispanic or Latino, n (%)	2 (22)
Native Hawaiian or other Pacific Islander, n (%)	0 (0)
Asian, n (%)	0 (0)
Other, n (%)	1 (11)
Military Service or Civilian	
Air Force, n (%)	0 (0)
Army, n (%)	9 (50)
Marine, n (%)	0 (0)
Navy, n (%)	0 (0)
Civilian, n (%)	0 (0)
Service Component	
Active Duty, n (%)	9 (50)
Reserve, n (%)	0 (0)
National Guard, n (%)	0 (0)
Retired Military, n (%)	0 (0)
Prior Military but not Retired, n (%)	0 (0)
Military Dependent, n (%)	9 (50)
Civilian, n (%)	0 (0)

Final Budget Report

Date: July_31st 2013_____	Funds Approved	Expenditures To Date	Projected Expenses
Personnel			
Consultant			
Equipment	620		0
Supplies			
Travel	5,850	3,680.11	0
Other Expenses	5,350	3,004.51	0
Patient Expenses			
Consortium Costs			
Indirect Costs	6,737	4237.76	0
TOTALS	18,557	11453.14	0